

**MATERIALS FROM
THE NATIONAL ARTS &
THE HANDICAPPED
INFORMATION SERVICE**

Arts for blind and visually impaired people

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1978

**The National Arts & the
Handicapped Information
Service**

Larry Molloy, Director

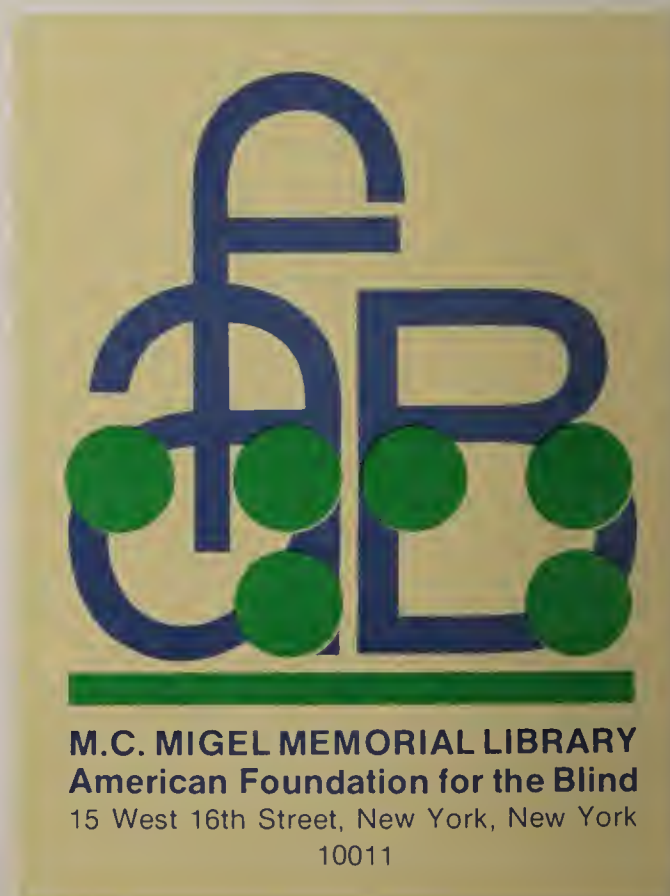
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The blind and blindness in America

One issue that elicits a great response from museum administrators and staff is the question of how the arts should be made accessible to blind and visually impaired people. Very often, museum administrators who are unused to working with blind people do not respond enthusiastically to providing accessibility because they fear undue risks, increased costs, and inappropriate behavior. In most cases, their fears are unfounded. Museum project administrators who have worked cooperatively with blind citizens and organizations representing the blind report that their arts activity is often improved by including considerations for blind people.

In the past, pioneer projects for making the arts accessible to the

blind were developed in isolation from one another. Not surprisingly, administrators today disagree over how arts institutions should plan for blind and visually impaired visitors, and many argue that they have the only worthwhile solution. However, at this stage, it is far too soon to adopt or recommend anything more particular than general principles.

The key to planning arts activities for blind patrons is to involve blind people and their organizations in an overall program designed to gradually convert services and facilities within a set period of time. In fact, the Endowment's regulations encourage an arts organization to convene an advisory council of handicapped citizens to help plan for accessibility. No one promises that such programs will be easy. But the federal mandate for equal opportunity for the handicapped is universal, and professionals in the arts are well equipped to respond creatively to the social and

communication problems confronting this new civil rights movement.

Visually handicapped people comprise a significant portion of the United States population—about 10 million adults and children. Approximately 1.3 million are blind, 500,000 of whom are "legally blind" and registered with state rehabilitation agencies. Only about 10% of the 500,000 "legally blind" are totally blind; the remaining 90% have some vision, usually residual or peripheral. Residual vision can be great enough to use for travel or reading with visual aids such as closed-circuit television, large type, or special lenses, or it can be so limited that it only allows sensing the direction of sunlight. In addition to the blind, there are about 1.7 million people considered severely visually impaired and about 8 million who are partially sighted, i.e., they require corrective surgery, special lenses or suffer from a deteriorating condition. These figures do not include people wearing ordinary glasses. About 60% of the blind and visually impaired are over 65.

The major causes of blindness in the U.S. are diabetic retinopathy, cataracts, glaucoma, home and industrial accidents, and medical accidents such as retrolental fibroplasia in babies caused by improper oxygen delivery in incubators.

There are two kinds of blindness: the congenitally blind or those who have been born blind, and the adventitiously blind or those who incur blindness during or after childhood. The congenitally blind are more likely to learn braille. Many adventitiously blind people do not. Thus, perhaps one-third of the 500,000 legally blind population, or approximately 150,000 people, read some braille. Literacy may vary from an ability to recognize numbers to competency in high speed braille reading. The National Blindness Information Center estimates that only about 40,000 Americans can be considered literate in braille.



Why and how we produced this special issue

Almost 50% of our subscribers have requested materials on tactile galleries and arts for blind and visually impaired people. Although architectural access is making it easier for the physically handicapped to enjoy the arts, there are only about 20 tactile galleries that include arts experiences for blind people in the United States. Some of these galleries are open only to blind visitors, and thus impose an unsolicited segregation on blind patrons. On the other hand, tactile galleries that open their doors to the public attract thousands of visitors both handicapped and able bodied. The Mary Duke Biddle Gallery at the North Carolina Museum of Art logs 10,000 sighted visitors per month. And the Lions Gallery of the Senses is the most popular attraction at the Wadsworth Atheneum in Hartford, Conn.

Blind people, however, are increasingly agitating for reasonable access to all arts programs and exhibits — not just token access to specific events. Through the Rehabilitation Act of 1973, federal law requires equal opportunity for all handicapped people for all federally-supported activities. Thus museums and cultural centers receiving federal funds will have to begin to make their exhibits and programs accessible to blind patrons.

To find out how all the arts could be made accessible to the blind, we spoke to experts in the field who told us about new methods and services that are enthusiastically adopted by the sighted public. At the Smithsonian National Air and Space Museum, for example, record crowds of non-handicapped people are enjoying exhibits that were designed for accessibility to the handicapped. The Historic New Orleans collection (historic presentation of 19th century

fully furnished home and galleries depicting the history of New Orleans) has made all of its exhibits accessible to blind people by allowing hands-on experiences. Significantly, this program has also enriched the cultural experience for all visitors. Write: Stanton Frazar, Director, 533 Royal Street, New Orleans, La. 70130. In short, the new techniques for improving the arts for blind and visually impaired people also enhance the enjoyment of the arts for all people.

In order to bring to you the most up-to-date information, we commissioned articles from people who work with blind patrons daily. All were asked to respond to questions about safety precautions, insurance problems, conservation, color and lighting, communications, volunteers, mobility training, exhibit design, community organizations, and choosing materials for the senses of sound, smell, taste and feel. We want to thank each contributor for helping us put this issue together. Unquestionably their work has enhanced arts experiences for all of us.

National Air & Space Museum, Washington, D.C.



General principles of planning for the blind and visually impaired

From the content of the following articles and our discussions with other arts administrators, teachers, and artists, we believe that the following general principles apply when a museum, gallery, workshop or performing arts organization plan arts programs for blind and visually impaired people.

Discrimination

In 1973, the president signed Public Law 93-112, commonly called the Rehabilitation Act. Section 504 of this law specifically forbids discrimination against any handicapped citizen in any program or facility that receives federal financial assistance. During 1979 most federal agencies will issue regulations for Section 504 to all grantees and contractors.

Fundamentally, this law means that no cultural institution nor any program which is supported with federal funds may deny blind people access to an arts activity. In fact, the law specifically requires the institution to make reasonable accommodations for handicapped people so that they may enjoy cultural programs. No cultural institution that receives federal funds is exempt from this mandate.

At this writing, there are no fixed standards and no authorized guidelines for how museums should accommodate blind or otherwise handicapped visitors. Programming for blind visitors is in a state of constant change and experimentation. There are no pat answers and no formula solutions. In short, handicapped and nonhandicapped people are in the same boat sailing uncharted waters, making mistakes and new discoveries every day.



Blind and sighted children enjoy the tactile displays in the Discovery Room at the Smithsonian Institution's National Museum of Natural History, Washington, D.C.

Involvement

There are too few successful arts programs serving blind constituents to have developed standards and guidelines for accessibility to the blind and visually impaired. Likewise, sighted administrators, planners, and artists know too little about blindness to plan appropriate programs and facilities for blind patrons. Therefore, blind and visually impaired people should be involved in planning and implementing all arts exhibits and programs designed to serve them. The law, in fact, requires that handicapped people must participate in designing a transition plan for compliance with the new regulations. Many arts organizations convene advisory councils composed of blind and physically handicapped people of different ages, educational levels, and backgrounds in order to plan for equal accessibility to the arts.



Blind sculptor, Ben Apicello examines a bronze by sighted sculptor, Xavier Medina-Campeny at the Genesis Gallery in New York City.

Touching

For museums, this subject is probably the most sensitive issue. It is important, however, to keep tactile museum experiences for blind patrons in perspective. The laws mandating equal opportunity for the handicapped do not require physical access to every artifact nor all the museum's collections. Rather, the law calls for "reasonable accommo-



dation," an effort by an arts institution to work with handicapped citizens to develop, when necessary, reasonable alternatives to the tactile experience in the most integrated setting possible. Depending on the organization, a reasonable alternative may mean that some artifacts are available for touching, that facsimiles or thermoform reproductions are displayed, that cassette tours contain descriptive material, and that at least some docents or guides are taught how to describe arts to blind visitors.

Thus permission to feel artifacts is not a total solution for accessibility to the blind. Tactile exhibitions certainly help to accommodate blind and visually impaired constituents, but only if the same exhibits are available to everyone. Necessarily, policy on touching artifacts will vary according to the cultural organization and the content of its collections. Many artifacts are simply too valuable or too fragile to permit handling, and blind people do not expect license to handle everything. However, blind and visually impaired people do expect a cultural organization to make reasonable accommodations for accessibility.

Integration

No program, facility, or amenity (including exhibits and tours) should be developed for use by blind people only. No matter how supportive or expensive, special segregated facilities or programs quarantine blind people from mainstream society and impose an unwanted and unnecessary inequality.

The sudden presence of blind visitors may disturb staff and distract visitors. Therefore, it is particularly important to orient staff to new policies toward blind visitors. Many museum administrators recommend awareness training for staff members, for example, in-service courses in conduct and touring with blind visitors and materials about blindness. The public can be alerted by press releases announcing a new policy on equal opportunity for the handicapped and by posting signs at all entrances. It is recommended that cultural institutions establish working relationships with organizations of the blind.



The Picasso monument in Chicago's Daley Plaza is made accessible with a small scale model of the sculpture, a Braille description, and a tactile map of the plaza.

Program accessibility

The new regulations for Section 504 of the 1973 Rehabilitation Act state that any federally supported activity cannot exclude handicapped people because facilities are inaccessible. However, the regulations do not require barrier-free access to every square inch of every floor in every building. Instead, the regulations call for a concept called "program accessibility." This means, for example, that if an equal assortment of equal quality arts activities are offered on the building's first floor, then the upper floors do not necessarily need architectural access. Thus museums can redeploy programs and resources to accessible spaces so that handicapped visitors have access to at least a representative sampling of all collections.

The concept of program accessibility for blind visitors means that no single exhibition nor any unitary collection may completely exclude blind

visitors. However, not every artifact nor every detail must be designed for accessibility to blind visitors. Again, we recommend an advisory council composed of local handicapped citizens who will help arts organizations plan appropriate access to their various programs.

Timing

Although an arts organization may not exclude handicapped visitors, the concept of reasonable accommodation does not mean that you must accommodate instantly; i.e., employ the staff capable of meeting the special needs of "walk-in" handicapped visitors. For example, the regulations require that federal grantees must provide interpreters, modified schedules, communication aids or special equipment if these will reasonably accommodate handicapped visitors. Ordinarily, such services constitute a tour. Since the regulations do not require special privileges for handicapped people, the museum may impose the same reasonable requirements on tours for the handicapped as they impose on tours for the general public: most often advance notice and a minimum number of people to qualify for the special services. Thus the cost of special services can be amortized over a period of time for a number of handicapped visitors. However, the tours providing special services for handicapped visitors should be integrated into the regular tour program and should be open to or include nonhandicapped people. The regulations prohibit unnecessary segregated services for handicapped visitors.

Communications

Cultural organizations should make every effort to provide alternative communications and materials for blind and visually impaired patrons. These include Braille, large type, and tape recordings. According to the National Blindness Information

Center, only an estimated 40,000 Americans are considered literate in Braille. Therefore, demand for Brailled materials will not be very high. Nevertheless, some general information materials should be available in Braille. (Raised lettering is not considered a useful technique for running text whereas Braille can deliver large amounts of information to those who are literate in it.) Many schools, libraries and service organizations for the blind will Braille materials at little or no charge to cultural organizations. Failing that, the costs for Brailled materials should not be much higher than ordinary printing charges.

Large print is useful to all audiences except severely visually impaired. Large print materials, however, are bulky and often expensive. Cassette recordings may be the best solution for communications accessibility to the blind and visually impaired. Many voluntary organizations serving the blind such as Red Cross, the Temple Sisterhoods, and Kiwanis Clubs will record materials and often duplicate cassette recordings at no charge. If there are no organizations in your area, Library of Congress, Division for the Blind & Physically Handicapped will record or Braille materials free on request and will circulate materials to their readers in your area. (See the list of National Resource Agencies. p 21.)

Labels and signage

Standards for accessibility require that signs with descriptive material about public buildings and objects of cultural interest should have raised, large type letters if audio tape devices or sighted guides do not provide the same information. Raised characters should be at least 5/8 inches high, (16mm or 60 pt. type), 1/64 inches (.4mm) thick, in a heavy or broad type face neither thin nor italic. There should be no glare and maximum contrast between characters and the background.



Museums and the blind, by Harold Snider

Harold Snider is coordinator of programs for the handicapped at the Smithsonian Institution's new National Air and Space Museum, probably the most accessible cultural facility in the United States. All exhibits provide experiences and information for all handicapped people. Equally important, however, is that nonhandicapped people enthusiastically use the amenities designed for the handicapped: puppets to explain technology, participatory displays, multimedia communications, and artifacts that encourage a visitor to feel and explore—there's even a piece of the moon to touch. Snider drew on his experiences at the Smithsonian to write this article on his philosophy and approach to museum planning for the blind.

There are about 10 million legally blind or visually impaired persons

Visitors to the National Air & Space Museum in Washington, D.C., crowd around the tactile display of a Moon rock.



who have the same rights to visit a museum as everyone else. For those 10 million, visiting a museum is more of a problem of social accessibility—the availability of exhibitions and attitudes of staff—than of physical accessibility. In fact, architecturally inaccessible facilities are only a minor nuisance to visually handicapped people who are not otherwise physically handicapped nor use guide dogs.

There are two parts to my philosophy about museum visiting by the blind: cooperation and acceptance of blind people, and a total integration of the blind into the museum environment.

When I started work at the Smithsonian Institution in September, 1975, I was appalled by how little the people interested in museum programs for special audiences knew about the needs and desires of the blind and other handicapped people. Advice the Smithsonian had received tended to segregate the blind visitor into touchable exhibits with braille labels or explanatory audio tapes. No blind individual or person representing the views of the organ-



Harold Snider demonstrates raised-line drawings to museum visitor.

Labeling and signage materials that meet these requirements are readily available and cost little or no more than standard labels and signs. All labels and signs should be placed at a standardized height and location no more than 60 inches from floor level, preferably 48 inches above floor level.

Accessibility standards do not require braille labels or signage. Since braille labeling is inexpensive (see list of equipment used at the Smithsonian Institution, p.10), we recommend braille for elevators, directional signage, and tactile exhibitions.

Costs

Expenses for making arts accessible to blind and visually impaired people are not high. Most materials are inexpensive and many services are provided free. Excepting braille, all other accommodations for the blind will improve arts experiences for all people — large type, standard labeling, trained docents, and cassette tours provide a better service to the sighted public and thus make any expense for accessibility more cost effective. More important, considerations for accessibility are changing the way cultural organizations serve their audiences and thus increase public participation in arts activities.

ized blind was ever consulted about designing the Smithsonian's segregated rooms for the blind. Furthermore, the Smithsonian did not advertise its facilities or exhibitions for the blind through those media that the blind person could use. You don't advertise museum exhibits for blind persons in the local newspaper because blind people don't read newspapers.

The fact that I was hired to create accessible programs for handicapped visitors at the National Air and Space Museum indicated an increasing awareness on the part of the Smithsonian Institution's administrators. Before I began devising and implementing programs for the handicapped in the National Air and Space Museum, particularly for the blind, I decided that those programs were going to be different. For advice I first went to the consumer group that represents 50,000 blind persons, The National Federation of the Blind (NFB), an organization founded 36 years ago in Wilkes Barre, Pa.

Going to the NFB meant taking a chance on alienating agencies that work for the blind and view the federation as radical. But I thought that the NFB's aid was important because the federation has an affirmative attitude toward blindness. "Blindness is not a physical handicap. The handicap of blindness is the attitude of society toward the blind," says Dr. Kenneth Jernigan, president of NFB.

The important thing about the cooperation with the NFB is that it provides training materials which enable persons in museum work to achieve an attitudinal change. These training materials include 50 brochures, pamphlets, and public statements, and three films. The films are "We Know Who We Are," a documentary about the capabilities of blind people; "The Blind: an Emerging Minority," a basic statement about the emerging character of the blind as a minority within the U.S.; and "Blindness: Is the Public Against Us?", a speech given at the 1975 national convention of the NFB which describes some of the prejudices held by the sighted public and exemplified through the press, education and agencies for the blind. Copies of these films and brochures may be obtained by writing to The National Federation of the Blind, 218 Randolph Hotel Building, Fourth and

Court Streets, Des Moines, Iowa 50309, or by calling the National Blindness Information Center, toll free 800-424-9770.

The NFB provides important services through its 700 chapters and 50 state affiliates such as free consulting in member local areas. Within each chapter are trained leaders who will visit the museum and explain the NFB films and philosophy of blindness. The membership of these chapters is composed of all sorts of blind people who may visit the museum regularly to help you develop, implement, and improve programs.

The programs that have meaning for blind persons in museums are: tours, literature, and exhibits.

Tours

There are three aspects of museum tours to be considered. Tours taken by blind people independently; tours taken by a blind person accompanied by family or friends; and tours taken by groups of blind persons either all blind or mixed with the sighted. Speaking philosophically, it is not the museum's responsibility to protect a blind person from himself or his environment. It is imperative that the museum give the blind person an equal opportunity to enjoy things in the museum that can be appreciated by the use of alternative (not special) techniques. For instance, it is not the museum's responsibility to find someone to hold the hand of every blind person in the museum. But if a blind person visits the museum independently, he or she must be able to tour it alone as a competent traveler whether with a cane, a dog or an electronic guiding device.

The museum's role is to orient the blind visitors and make them feel as comfortable in their new surroundings as it does for the sighted. This is easily done. When a sighted visitor enters the museum he is provided with a floor plan. A plastic or plexiglas model of the building should



provide the same information to the blind, and can be made by the exhibit's department at very little expense. Each gallery can be raised with a plastic overlay, or scored with a burning tool. Raised lines will make it easy to "read" floor plans. The building model should be made so that the blind visitor can easily feel and understand all parts to locate all the galleries, and services — rest rooms, elevators, telephones, and cafeteria. The model should be near the floor plan at the main information desk and not be tucked away in a special room. If the braille or raised print labels are vandalized they can be replaced easily and inexpensively with plastic tape. Contact the local chapter of the NFB for advice on services and supplies for braille labels.

If your museum is large, you might want to consider raised-line maps. For information about the variety of raised-line mapping techniques for the blind, write to Professor John Sherman, Department of Geography, University of Washington, Seattle, Wash. 98195.

Independent tours After independent blind visitors ascertain what they want to see in a museum they must have access to the museum exhibits. If touch or close scrutiny with the use of a low vision aid is prohibited, alternative techniques such as cassette tours should be made available. The cassette tour need not contain mobility information because some blind people using canes or guide dogs are very good independent travelers and look for landmarks inside a building for orientation.

A cassette tour should take the place of printed labels. For example, the Air and Space Museum uses a three-part label. The first part in large print gives two or three basic facts about the artifact. The second is a longer narrative, and the third a technical explanation. A cassette tour containing only the print labels read aloud will be only as good as the labels for the sighted. Independent blind travelers can also use two-dimensional raised-line drawings or three-dimensional scale models of nontouchable exhibits.

Tours of blind with family or friends

First, it is important to tell the companions of blind visitors what is touchable in the museum. This information is important for all three groups, but particularly for the blind accompanied by guides. A blind person may choose to take the cassette tour alone so that his guides don't have to read the exhibit labels.

A group with sighted persons If the group is mixed, the guide can orient the blind visitor to the building model while the sighted study the floor plan. It is important that these tours including blind people be as similar as possible to other group tours, scheduled the same way, same minimum/maximum numbers, same advanced notice and procedures for arranging guides. Tours comprising only blind visitors will necessarily take longer because of the amount of time needed for each person to touch and understand ob-

jects. For example, a sighted visitor can see an airplane and understand the shape and purpose of each part within a few seconds. A blind visitor may need five minutes or more to touch and understand the same airplane.

Literature

The premises on which programs in the Air and Space Museum (all the programs discussed in this paper) are based are equal opportunity, equal access, and equal availability to what there is in a museum. Whatever the museum distributes — a brief history of the museum, a free brochure with explanations of galleries, floor plan, etc., should be made available in braille, on tape, and in large type without annotation or condensation. The National Air and Space Museum gives away an 8-page brochure that costs 2¢ to print. The same brochure costs 17¢ in braille, 40¢ on tape, and 10¢ per copy in large type for the first 1,000 copies. Although these cost more to produce, they are distributed free-of-charge, just like the print version.



A blind museum visitor reads a braille description of the contents in an educational kit at the Smithsonian Institution's National Museum of Natural History in Washington, D.C.

Books about a museum and its collections that are sold in the museum shop should also be available in braille or tape. The Smithsonian Institution sells its *Official Guide to the Smithsonian* and the Guidebook of the National Air and Space Museum entitled *Celebrating the National*

Air and Space Museum, in braille and on tape in all the Smithsonian's museum shops. The books are sold at the same price as the print editions, \$2.00. The museum does not lose money; a cassette costs \$1.25 each to produce and sells for \$2.00. The 75¢ per copy is recycled into further publications. Our braille edition costs \$2.00 each for the first 1,000 copies and with a sales price of \$2.00, we break even on the first 1,000.

Duplicating braille

Special literature such as programs for lecture series or handouts to school groups can be put into braille and easily duplicated in small quantities with a thermoform machine. Thermoform is a process in which a heated plastic sheet is pressed, through suction, against braille or a raised drawing or model so that the contours and braille dots are imprinted in the plastic. The process has been used in schools and organizations of the blind for about 12 years. Braille produced on a press (usually in quantities greater than 100) can be reproduced at reasonable costs similar to ordinary printing.

Duplicating tapes

Cassette books and literature can be produced in three ways. 1. The museum can buy a high speed cassette duplicator to reproduce two or three cassettes at a time; 2. Use a commercial cassette duplicating firm in your area; 3. The least expensive—ask your regional library for the blind and physically handicapped to help produce or duplicate cassettes. There is a regional library in every state and subregional libraries in many metropolitan areas. For the address of your nearest library write: Karen Renninger, Network Services, Division for the Blind and Physically Handicapped, Library of Congress, 1291 Taylor Street, N.W., Washington, D.C. 20542.

Much of the material on cassette is read by volunteers. However, it is important that the same degree of professionalism used in creating the museum's print labels and cassette tours for the sighted be used for the master copy of cassette literature for the blind.

Playing equipment: the regional library for the blind and physically handicapped may loan special cassette playing equipment, including players and headphones, provided that the museum makes no use charge to the blind.

Exhibits

It's difficult to say what should or should not be touched in a museum, and, of course, it depends on the museum's collection. For instance, visitors to the National Air and Space Museum, blind or sighted, can touch the Apollo 11 Command Module, that took the first men to the moon. But they can only touch part of it. There is no way to gain perspective unless you study a thermoform raised-line diagram or a model. At Air and Space touching is far from a panacea. In some museums there are art objects in bronze, marble, glass, etc., that are perfectly suitable for touching. Policy, however, differs among museums. Some will allow touching by blind visitors if they wear very thin rubber or cotton surgical gloves to prevent skin oils damaging the artifact. Most require visitors to remove rings, watches and bracelets.

Raised-line drawings

Basswood is the best material for making raised-line drawings of museum artifacts because it does not disintegrate, is easily carved, and is available in thin sheets. Since it is impossible to thermoform anything over 1/4-inch high, thin basswood sheets are used to build up in small increments of height. Raised-line drawings must be done to scale. At Air and Space we have found that carved-line drawings of a rocket, air-

plane, or spacecraft needs to be done by an engineer with an eye for making an exact replica. If you are working with art objects, try to get a carver who can interpret them artistically.

Completed thermoform master plates out of basswood are best glued onto heavyweight braille writing paper 11 x 11½ inches. A braille label can be added by inserting this paper into a normal braille writing machine or using a braille writing slate and stylus.

For museums using a lot of braille, it is best to use a combination of the National Federation of the Blind members plus sighted volunteer transcribers for help. The Library of Congress, Division for the Blind and Physically Handicapped operates a program that trains sighted persons to transcribe print into braille. The volunteers are usually associated with the American Red Cross or a Jewish synagogue in most metropolitan areas. They can transcribe master copies and thermoform, whatever is needed. Some have their own thermoforming equipment; if not, check your school district's department of special education.

Try all of these community based resources before purchasing your own equipment.

Training museum staff

It is important that museums should train those persons (either staff or volunteers) who would associate with blind visitors. Training should consist of two parts: a philosophical attitude change about the stereotypes of blindness and some nuts and bolts training about how to guide blind visitors and how to explain visual concepts verbally. Films, and brochures and consultants from the National Federation of the Blind will help in the training process. The address is National Federation of the Blind, 218 Randolph Hotel Building, Des Moines, Iowa 50309.

Communication is the key

The programs I have developed substantiate that the integrated approach to giving equal opportunity to everyone costs less than segregated facilities for the blind and is more cost effective because the improvements benefit everyone. For this to succeed, it is important that you consult with blind persons at the start of a program development. You may wish to do things that have not been discussed in this article, but which are necessary and easy to do. For instance, braille signage in elevators and other ways of making the museum available to blind persons. Accessibility for blind people differs from accessibility for the physically handicapped and museums should deal with the needs of blind people separately. Stairs are not a greater problem for a blind person than for a sighted person, nor are escalators or elevators. Blind persons like or dislike ramps to the same degree as anyone who can see. Remember, barrier-free facilities for the physically handicapped make no difference in accessibility for the vast majority of blind visitors.

Museums and Handicapped Students, by Harold Snider et al, 1977, is available free from Harold Snider, Coordinator, Programs for the Handicapped, Room 3566, National Air & Space Museum, Smithsonian Institution, Washington, D.C. 20560.

Equipment used at the Smithsonian Institution

Braille writers-manual (about \$150), and electric about \$275. The electric model can braille an adhesive-back plastic label suitable for some exhibits. Write: Harry Friedman, Howe Press, Perkins School for the Blind, 175 N. Beacon Street, Watertown, Mass. 02172.

A braille printer familiar to museum literature is William Raeder, Manager, National Braille Press, Inc., 88 Saint Stephen Street, Boston, Mass. 02115.

Braille (Model D) typewriter (about \$500) enables an untrained sighted typist to braille on stationery. Ordered through local IBM office, products division.

Braille labeling (\$2.40 for 133 characters). Plastic braille characters for labeling individual items — plain and adhesive backed. The company will also print running text on plastic chases. Write: Scott Plastics, P.O. Box 2958, Sarasota, Fla. 33578.

Thermoform duplication machine (about \$900), lightweight paper (about \$25 per ream), heavyweight paper (about \$15 per 100 sheets). Low-heat vacuum press uses plastic paper to produce braille labels and raised-line drawings from models. Write: American Thermoform Corporation, 8640 E. Slauson Avenue, Pico Rivera, Calif. 90660.

Raised-line drawing kits and other educational materials. Catalogue available from Howe Press, Perkins School for the Blind, 175 N. Beacon Street, Watertown, Mass. 02172.

Laser Cane (\$2,350) a white cane using infrared lasers to detect obstacles by converting reflections into sound. Bionic Instruments Inc., 221 Rock Hill Road, Bala-Cynwyd, Pa. 19004.

Catalogue of Educational Apparatus for the Blind, American Printing House for the Blind, 1839 Frankfort Avenue, Louisville, Ky. 40206.

Digi-cassette (\$2,600) cassette recorder with tactile braille display board. Suitable for use with computer terminals in museums. Write: Elinfa Inc., Suite 114, 1725 K. Street, N.W., Washington, D.C. 20036.

White Canes (\$6.00) tubular fiberglass canes which meet legal requirements for white cane laws. Available in lengths 45 to 63 inches. Write: National Federation of the Blind, 218 Randolph Hotel Building, Des Moines, Iowa 50309.

Raised geophysical maps available with braille and print guide. Catalogue also includes aids and appliances. Write: Royal National Institute

for the Blind, 224 Great Portland Street, London W1, England.

Miscellaneous maps, games, toys, tables, and educational materials. Catalogue includes material and equipment for the blind and for other handicapped people. Write: Telephone Pioneers of America, Hawthorne Chapter, Western Electric Co., Inc., Hawthorne Station, Chicago, Ill. 60623.

Museum outreach cases — Haliburton camera cases (about \$120) contain foam rubber that can be cut and shaped to receive tactile materials and communication equipment. Materials can be shipped safely. Available in local camera stores.

Tape recorders — The Smithsonian uses the Sony TC55 (about \$125) because it is rugged, lightweight, has earphones, rechargeable batteries, logic control, and instant stop and start. However, the regional and subregional libraries of the Library of Congress, Division for Blind and Physically Handicapped, often loan cassette players with equipment and headphones at no cost. They also provide music recordings, publications, and equipment. To obtain a list of regional and subregional libraries, write: The Library of Congress, Division for the Blind and Physically Handicapped, 1291 Taylor Street, N.W., Washington, D.C. 20542.

Cassette Tours — local chapters of the National Federation of the Blind provide free consultant services to public centers interested in developing tour programs for blind visitors. For the address of the nearest chapter, write: Kenneth Jerningan, National Federation of the Blind, 218 Randolph Hotel Building, Fourth and Court Streets, Des Moines, Iowa 50309.

Cassette duplicators — The Smithsonian uses the 3M cassette duplicator (prices vary) and Infonics duplicator — one cassette in stereo that duplicates two manual cassettes at a time. Write: 3M Company, Mincom Division, 3M Center Building, 223-5E, St. Paul, Minn. 55101, and Paul

Loyd, President, Infonics Inc., 238 Highway 212, Michigan City, Ind. 46360.

Rapid reading rate control speech device — The Smithsonian uses Varispeech Two (about \$600) a speech speed compressor/expander. Write: Lexicon, Inc., 60 Turner Street, Waltham, Mass. 02150.

Optical to tactile converter, OPTACON (about \$3,000) a television camera and tactile display board that convert print into tactile letters — not braille. Many schools are now training students to use the OPTACON. Write: Telesensory System, Inc., P.O. Box 10099, 3408 Hillview Avenue, Palo Alto, Calif. 94304.

Speech Plus calculator (about \$400) a four-function, eight-digit talking calculator with a 22-word vocabulary. Write: Telesensory Systems, Inc., 1889 Page Mill Road, Palo Alto, Calif. 94304.

Sonic guide (about \$2,350) environmental sensor eyeglasses that use ultrasonic impulses to detect obstacles. Write: Telesensory System, Inc., 1889 Page Mill Road, Palo Alto, Calif. 94304.

Arts administrators and planners should keep up-to-date on the rapidly changing technology for blind consumers. The best sources of information are:

The National Federation of the Blind, 218 Randolph Hotel Building, Fourth and Court Streets, Des Moines, Iowa 50309.

Harold Snider, Coordinator, Programs for the Handicapped, National Air and Space Museum, Smithsonian Institution, Washington, D.C. 20560.

Marvin Berkowitz, Director of Research, American Foundation for the Blind, 15 West 16th Street, New York, N.Y. 10011.

Thomas A. Benham, Technical Director, Science for the Blind Products, Inc., 221 Rock Hill Road, Bala-Cynwyd, Pa. 19004. Catalogue and newsletter.

Exhibitions for the visually impaired, by Maya M. Reid

The Mary Duke Biddle Gallery at the North Carolina Museum of Art (Raleigh, N.C. 27611) opened in 1966. It is believed to be the first permanent tactile gallery in the United States. The gallery's success for both visually impaired and sighted people led the state legislature to support its operation with an annual appropriation. Maya M. Reid was the Biddle Gallery's curator for the last six years, and she is now in the Education Department where she administers programs for the Biddle Gallery and lectures and teaches art to special groups throughout the state. We asked Ms. Reid to respond to questions about safety, conservation, lighting, docents, integration, what to avoid, and how to choose appropriate exhibit material.

If we recognize that museums are an educational tool and a source of enrichment to our lives, and if we assume man's unique creative ability with which he interprets, records, anticipates, depicts the worst and the best of man's progress, promotes tears, laughter, pleasure and horror, then museums should be, indeed must be, available to everyone regardless of their abilities or disabilities. If we selectively deny opportunity or withhold knowledge, it is the same as denying aid to the sick, food to the hungry, or shelter to the homeless.

Mary Duke Biddle gallery at the North Carolina Museum of Art in Raleigh.



Exhibitions for the visually impaired should provide them the same opportunities available to their sighted colleagues. The following notes on making the visual arts available to the visually impaired are based upon seven years of personal experience.

Costs

The cost of our exhibitions fluctuate largely on the elaborations of the installation, transportation, packaging, insurance (all based on size and weight), publicity, brochures, opening reception (if any), as well as the normal overhead costs. Local artists, collectors, museums, and art dealers can be asked to help. Local school and college art and architecture departments can be involved, and architects and industrial organizations often are cooperative and generous. The breadth of the exhibition will reflect the imagination, work, and enthusiasm of the organizers.

Safety precautions

An artifact exhibited for touching should have a very steady base so that it cannot be tipped over easily when jostled. Blind people will invariably move through an exhibition with their hands raised seeking the next object. So a slight brush from an outstretched hand will upset an unstable artifact. This defeats the purpose of welcoming the visually impaired or any other handicapped persons. The goal should be to make blind people feel comfortable and at ease.

When a work of art on a pedestal is not very heavy and may shift, I suggest a slight rim be placed around the edge of the pedestal. A mounted exhibit should have no sharp edges or points because persons with partial vision get extremely close to a work and can injure themselves while trying to see it.

Nothing should obstruct clear circulation unless visitors are warned. A visually handicapped person's greatest fear is that they may stum-

ble, run into things, even fall. A guide rail should be provided — either a stationary rail attached to the wall or a movable rope leading from one work to another so that the blind person can be completely independent. Since everyone "looks" at things at a different pace, works should be spaced so that more than one person can "look" at an object without feeling squashed. It is a good idea to have some cloths or towels for visitors to wipe the natural oils off their hands before and after feeling artworks.

Insurance

My experience has been that the normal policy carried by a museum will cover exhibits attended by handicapped visitors. Collectors invariably have heavy insurance and floater policies that cover works outside their homes. More frequently, artists are carrying their own insurance. When borrowing, it should be clearly understood that every care will be taken to ensure the safety of the work but that something odd or extraordinary may occur and the gallery (museum) cannot be responsible beyond a certain point.

Conservation

The major bone of contention between those who advocate touching and those who don't is the one of "patina." It does come off, but it can be replaced. Some artists, curators, and owners don't mind; others do most vehemently. This point *must* be clarified before any piece is allowed to be touched. Exceptionally old bronzes have been known to carry tiny particles which, when put into the mouth after handling, can cause sickness. Again, I recommend cloth or some means with which the visitor may wipe the hands before and after visiting the exhibition. Of course, the works should be kept clean. Artists must be warned that constant handling will alter the surface of their work, and a thin plating over bronze

or other metal may come off. I have never found an artist to object, but they should be warned in writing.

Lighting

When providing for visually impaired people you should remember that only about 10% are totally blind. Hence, those with some sight must be given the best possible lighting for their limited vision. I have found that spotlights are best. They highlight pieces and indicate where they are. Also, spotlights make the exhibition attractive.

Labels

Large type should be used at all times because it makes communication easier for everyone. Too often, museums have tiny labels placed in awkward locations that make every visitor strain. Braille labelling should also be used. An accompanying brochure in braille is necessary so that visitors can read it later and in their minds revisit the exhibition. Ideally, the exhibition should have an audio system giving visitors background material on the exhibition and/or the gallery. However, the commentary should not play continuously since it is very distracting.

For many blind visitors, our gallery is their first experience with art. A short talk before entering the exhibit

Blind visitors to the Mary Duke Biddle Gallery follow a braille strip describing the pieces.



helps dispel feelings of alienation and apprehension, making them feel welcome. You can get your materials set in braille by local libraries for the physically handicapped, schools for the blind, or volunteers who work with the blind. Costs vary according to the agency. To ensure accuracy, I suggest finding a blind volunteer to proofread.

Docents

One docent can take 15 sighted people around an exhibit and make it enjoyable for each one. For visually impaired groups, however, there should be one volunteer for every four to five people. A small group enables the volunteer to give individual attention, helping each person by bringing to their attention a particular detail so that he or she will want to look. A blind person should be told to use both hands while "looking." One hand gives a lopsided impression just like vision with one eye. Two hands immediately give the size and, very often, the shape of the piece. A mental image is built from there. A blind visitor must be taught how to "look" at art just as the infrequent sighted museum-goer must learn to look at a painting or piece of sculpture. Docents must vary the amount of information to give to each group and make the visit interesting without overburdening or scaring the visitors. Those who want more information about the subject will ask for it. Whenever possible, the connection between sculpture and painting should be encouraged, particularly if an artist has done both and the visitor is looking at a piece of related sculpture. Just because some people cannot see, does not mean that they cannot talk about painting or color or vision.

Integrating visual and nonvisual audiences

People are amazingly ignorant or misinformed about blindness and

they tend to gawk or get in the way when they see blind people enjoying works of art. As accessible arts spread, I hope that sighted people will ultimately feel comfortable enough to share their interest in the arts with the blind. To ameliorate the communication gap, blindfold tours or written material about blindness will help the sighted public adjust to the presence of blind visitors.

Material for exhibition

There is really no criteria for material except that texture takes the place of color. Blind people have been neglected and cut off from so much that they respond to anything of interest, especially if it is explained in the same detail as all other new exhibitions offered to the sighted public. An exhibition is certainly worth mounting if it can be related to life, offer assistance of everyday living, expand the horizons of the viewer, and, above all, spark creativity. I think it is pointless to start with a totally abstract exhibition as the first offering. However, abstract work must be introduced in due course, and with growing awareness and experience, blind art patrons will come to want and expect it.

Adults and children

Blind children are different from blind adults even though they share a common handicap. Children are often more sophisticated and knowledgeable because they had new opportunities in schools and increasing acceptance from society. Therefore, their approach to art will be much more normal than blind adults who have been discriminated against while growing up in less enlightened times.

What to avoid

Avoid sudden surprises in any form. For instance, a kinetic show. Works that move unexpectedly or move constantly. Works that emit noises.

Unpleasant sensations. Gross distortion of the face and particularly of the eyes. Anything squeamish. What the sighted find fascinating because of flashing lights, voices, music, traffic noises, participation, and so on, can be frighteningly confusing to the unsighted. Our eyes absorb visual impact and coordinate vision with sound. When an important sense is missing, however, there is an immediate distortion of the overall environment. Visitors can be prepared in advance, but preparation is difficult to coordinate and they may be unable to cope with multisensory experiences and thus be put off art for good.

A wider world than art

In summary, I would urge that all those planning exhibitions to keep the interests of the visually impaired and totally blind people constantly in mind. When in doubt, either blindfold yourself, experiment with others, or best of all, consult with blind people with different educational levels.

In the above discussions, I have assumed that the planned exhibitions are artworks, *but* remember that the loss of sight not only cuts one off from works of art but also from experiencing a myriad of things the sighted take for granted. As there are a variety of interests in the sighted world, so too in the blind world. When planning exhibitions, do not forget the interest created by antiques, old toys, old clothes, old kitchen utensils, clocks, sea shells, models of houses, cars, dolls, and so on. There is so much to discover and enjoy. Let us open those doors and let the light back in.

Art for Humanity's Sake, 1976, a written and pictorial history of the Mary Duke Biddle Gallery for the Blind is available (50¢) by writing to the North Carolina Museum of Art, Raleigh, N.C. 27602.

A gallery of the senses, by Pat Mulcahy

Another early pioneer in planning arts with and for blind visitors, the Wadsworth Atheneum (Hartford, Conn. 06103) has expanded its Lions Gallery of the Senses to provide new programs for new constituencies. We asked Pat Mulcahy, the gallery's project coordinator, to respond to questions about insurance, conservation, volunteers, communications, damage, exhibit design, and safety.

The Wadsworth Atheneum's Lions Gallery of the Senses is special because its exhibitions and auxiliary educational programs are directed particularly to visually impaired people. However, the gallery's goals — to provide nonvisual aesthetic experiences and to foster greater understanding of the artistic process — do not limit its use to blind people. By capitalizing on a general interest in participatory arts, the Lions Gallery is often a means by which museum visitors, handicapped or not, can explore the aesthetic potential of all the senses.

In the exhibition, "Faces," a special guard rail for visually impaired audiences provides a tactile guide for independent touring at the Lions Gallery of the Senses, Hartford, Conn.



Originally conceived as a "touch-to-see" space for the unsighted, the facility opened in 1972 as the Tactile Gallery. A pilot study recommended integrating sighted and unsighted audiences to ensure full use of the program. It was considered unrealistic to assume that a larger percentage of the legally blind would visit a gallery, even a gallery directed especially to them, than the 8% of the state's population who regularly visit the museum. There are about 5,000 visually impaired people registered with the Connecticut State Board of Education and Services for the Blind.

We changed the gallery's name in 1974 to reflect the importance of a multisensory approach and to acknowledge the generous support of the Lions International District 23B, Hartford and Litchfield Counties. The Lions have been primary financial sponsors since the gallery opened.

As the program developed, it became apparent that sound is particularly important to unsighted people. Blind people do not simply touch or feel their way through life; rather, they achieve much of their sense of space and their orientation through sound.

Since most unsighted people have little exposure to art and art history, we felt that a broader, multisensory approach would be more effective. Unsighted people should be introduced to the vocabulary of space, form, and composition before they are assaulted by the chronology of art history.

Financing

The Lion's annual \$20,000 contribution pays the salary of one full-time staff member plus basic exhibition costs and some overhead. As an integral part of the Atheneum, the gallery uses the services of museum public relations, maintenance, secretarial, design, and registrar staff. In 1975, the Atheneum also obtained a

Comprehensive Employment Training Act grant for a curatorial aide.

The museum's education director oversees the facility, raises funds, advises the gallery coordinator on exhibitions or allied activities, and acts as a liaison between the museum and Lions Gallery for the Sightless, Inc.

The Atheneum educational director and the president of the Lion's fundraising committee sit on the gallery's advisory committee, as do the gallery coordinator, the director of the Atheneum, and representatives from the unsighted community, the gallery volunteer corps, and the State Board of Education and Services for the Blind. The committee operates with its own by-laws, and meets quarterly to discuss exhibitions and related issues.

Damage liability

Three exhibitions are presented each year. They fall into three categories: loan shows, commissions, and in-house exhibits. Loan shows, while often less expensive than commissions, can present problems because of the risk of damage. Since private collectors and other art institutions may be reluctant to lend, the Lions Gallery staff usually approaches the artist directly. The Atheneum's standard loan agreement has a clause covering this.

As respects insured property exhibited in the Lions Gallery of the Senses it is understood that and agreed that this policy does not insure against loss or damage caused by wear and tear, latent defect, gradual deterioration or depreciation resulting from the handling of the insured property. Lender agrees that in the event of loss or damage, recovery, if any, shall be limited to such amount as may be paid by the insurer, and the lender hereby releases and agrees to hold the Atheneum harmless from any and all liability in connection with the objects lent hereunder.

Under these provisions, the Atheneum's policy will only cover damages or losses beyond those anticipated in a participatory gallery. Fortunately, most of our artists have been very generous and the Atheneum's reputation enhances the gallery's appeal as a place for artists to exhibit.

Possible damage to artifacts should be carefully considered. If the use of reproductions is to be rejected or kept to a minimum attention should be directed to choosing artifacts with solid construction and indestructible materials; and, as discussed later, exhibitions can be planned that use materials other than art objects. Our most serious incident, however, was due to overzealous visitors who damaged Harry Bertoia's delicate sounding sculptures. They forgot that these pieces are works of art as well as sound producers and tried to play them for maximum volume. In such cases, volunteers must become supervisors as well as guides.

Despite the problems involved in using original works of art, the Lions Gallery seldom uses reproductions. The success of a facility like this depends on adherence to standards of excellence comparable to those of

the museum as a whole. It is de-meaning to assume that unsighted people cannot appreciate original works of art.

Installations

It is not Atheneum policy to pay fees to artists, but in several instances the Lions Gallery has commissioned works that after the show are often given to Oak Hill School for the Blind or other institutions for the handicapped. In-house shows are drawn from the collection or designed by the gallery staff. Several exhibitions, both in-house and commissioned, have avoided damage problems by using an environmental approach with "non-art" materials.

Exhibition installation is carefully geared to the needs of the unsighted. Each show is planned with guides or indicators which permit blind visitors independent movement in the gallery.

Some of the early exhibitions were designed for nonvisual participation by all visitors; sighted people were encouraged to wear blindfolds. While many people appreciate the chance to explore a nonvisual environment, others feel that the intent is to make them feel "blind" or to induce sympathy for the visually impaired. But we found it is impossible to approximate blindness in the time it takes to go through an exhibition, and sympathy is not the gallery's purpose. Children in particular regarded the gallery visit as a "fun-house" event if blindfolded. This undercuts the gallery's real intent, and we now use normal museum lighting.

The gallery's informal atmosphere, combined with its participatory approach and unusual exhibitions, has made it very popular, especially with children. Since opening in 1972, the Lions Gallery has attracted 64,000 people, about 10% of whom have been handicapped.

Besides visually impaired people and regular museum visitors, the Gallery of the Senses accommo-

Students from Hartford's Oak Hill School for the Blind work with composer Art Wilwood in the Lions Gallery of the Senses' exhibition of musical sculpture by Bernard and Francois Baschet.



dates mentally retarded children and adults, the hearing impaired, physically handicapped, children with learning disabilities, and out-patients from mental institutions. Several handicapped people, including a blind girl, serve as volunteers.

Volunteers

Since many blind people do not read braille, there are few labels in Lions Gallery exhibitions. In addition, the gallery encourages direct, spontaneous responses which labels often deter unless a large quantity of materials are displayed. Printed and brailled materials about each show are available free-of-charge. A volunteer does the initial brailing, which is then duplicated for free at the Connecticut State Board of Education and Services for the Blind.

The volunteer corps is essential to the effective operation of the Lions Gallery, particularly because of the heavy traffic in school tours. Originally the volunteers were members of the Atheneum Docent Council whose members receive rigorous training on the collection and art history. However, the training needed for the two programs is not always compatible and some docents do not feel prepared to work with the handicapped.

Thus, the Lions Gallery volunteers are now a separate group of 12 people. The group includes interest-

ed citizens and students of art history, psychology, art education, and studio arts who receive partial credit for their work in the gallery.

Volunteers tell visitors about the special nature of the facility and the kind of participation called for by each exhibition. Presentations for scheduled tour groups are more structured. Since space is limited, the number of visitors in the exhibition space is kept to 15 per half hour which is the average length of a visit. When large groups are split up, the volunteers conduct sensory awareness exercises and theater games with those awaiting their tour.

We have incorporated similar techniques in other exhibition programs. Although limited in scale, they help release inhibitions before entering the exhibit and help give it focus afterwards. Local professionals in theater, movement, sound improvisation, and mobility training for the blind have conducted workshops for our volunteers in order to upgrade tour presentations.

Special exhibitions

Gallery of the Senses programming has recently moved in several new directions. In 1975, the Connecticut Commission on the Arts gave a grant toward the support of two exhibitions: "Walls" designed by the staff, and Les Levine's "I Am Not Blind," an important exhibit which directly

explored the experience of being blind. This year the Commission supported a workshop for visually impaired students to supplement an exhibition of sound sculpture by Bernard and Francois Baschet and two free public concerts using Baschets' sound sculpture. The grant will also help to purchase a Baschet sculpture. Two forthcoming shows, "Woodworks" (Sculpture) and "Paperworks" (Relief Printmaking) are supported by a grant from the National Endowment for the Arts. These exhibits reflect a gradual incorporation of auxiliary educational activities into the gallery's regular exhibitions program.

"Woodworks" and "Paperworks" will include materials about sculpting in wood and relief printmaking as well as a "project" section for teachers of both sighted and unsighted students. Kits containing five small works (wood puzzles and prints), tools, raw materials, and documentation of artists at work will be available to schools, community centers, and to homebound people.

Reaching the homebound, especially those who are visually impaired, has been a special problem. About 47% of the people registered with the Connecticut State Board of Education and Services for the Blind are over 65, often with other age-related problems. Transportation to the Atheneum is difficult for all unsighted people, and practically impossible for many older people. With the outreach sections of the "Woodworks" and "Paperworks" shows, the gallery can serve a large portion of the handicapped audience that has been cut off from museum activities.

In line with these attempts to broaden the program, the Wadsworth Atheneum has also begun accepting objects into an auxiliary collection for study purposes, designating these works for use in the Lions Gallery. In addition, a sounding sculpture by Harry Bertoia has been accessioned into the mu-

Visitors to the Lions Gallery of the Senses, Hartford, Conn., view Les Levine's "I Am Not Blind," an information exhibition about unsighted people.



seum collection, and is on permanent loan to the gallery.

Increasing the audience

Despite the Lions Gallery's overall success, several problems remain unsolved. The financial sponsors are somewhat unsatisfied with the number of visually impaired people who use the gallery — between 400 and 500 a year. Other Lions projects, such as an eye research clinic, serve a greater number of the unsighted community in Connecticut. About half of the visually impaired population is over 65 years or normally homebound, but we are pleased that 20% of the young mobile blind visit the gallery. When the gallery begins outreach projects, we will increase the number of unsighted people receiving museum services.

A percentage of the general population professes no particular interest in "art." Therefore, it is not surprising that some unsighted people express a similar disinterest, or that Lions Gallery shows do not constitute "art" to them. They may prefer a more traditional art history approach. Others regard access to the entire museum their right and consider the Lions Gallery's approach discriminatory, despite the fact that the gallery clearly serves the interests of a broad audience, albeit with an emphasis that differs from traditional museum presentations.

Several of the earlier exhibits in particular tended to identify the gallery in the minds of some visitors as the "museum for the blind" or as a "children's fun room." This is not uncommon in museums that have initiated participatory programs. There are museum professionals as well as visitors who disagree with this kind of involvement, and the debate is likely to continue.

The Lions Gallery of the Senses has made a concerted effort to present exhibitions for all visitors, handicapped or not, which stimulate greater awareness of the aesthetic

potential of sensory perceptions. It has been, and continues to be, experimental in its approach, with each exhibition adding new ideas for future planning. The knowledge gained since the gallery opened is invaluable not only to the staff but also to the museum's overall education program. There is no question that the Lions Gallery has attracted people to the museum who might not otherwise have come. In this alone, it has been an exceptionally worthwhile venture.

"Exhibition as Process," is an exhibition catalog from the Lions Gallery of the Senses in which the artists, the Lions Gallery Advisory Committee and museum staff have contributed their ideas on such varied questions as How do you experience art? Do you think about an artist's intent as you experience an object? What kinds of art are most appealing to you? etc. Available (\$1.00) from Wadsworth Atheneum, Lions Gallery of the Senses, Hartford, Conn. 06103.

A local jazz improvisation group performs a sculpture concert on pieces by Bernard and Francois Baschet for a general audience at the Wadsworth Atheneum, Hartford, Conn.



Museum education for the blind

Many museum art instructors are reluctant to develop programs for handicapped students. However, The Junior Arts Center (4814 Hollywood Boulevard, Los Angeles, Calif. 90021) runs a lively enrichment workshop program for public school students in which the handicapped are a source of experimental arts projects that excite all students. The handicapped students attend regularly, and most often work under individualized instruction alongside other children. Recently, blind and seriously visually impaired students from county schools have been leading their sighted peers into projects that might never have happened without them — sculpting tactile masks and creating giant faces from adding machine tape for long distance viewing. Claire Isaacs, Director of The Junior Arts Center, says that instead of describing the center and its programs in general, she would rather ask two of the center's instructors to describe their approaches to arts programs that include visually handicapped children. The following descriptions help dispel many doubts and fears that some museum education staff feel about blind children.

Teaching blind children, by Wendy Herbert

Handicapped children participate in an art experience much like other children. They come to The Junior Arts Center with varying degrees of receptivity to art. Some have unmet emotional needs and for them, the experience is primarily therapeutic and an end in itself. Other children, also close to their feeling and imagination, are able to learn techniques and disciplines from the teacher. These children learn to use the media to best express a private reali-



ty; they are learning to communicate an aesthetic vision to others.

Carol (not her real name) has 20/70 — 20/200 vision, no hearing in one ear, and profound loss of hearing in the other. I first became aware of her physical handicaps when we explored faces made of clay. I positioned her close enough so she could hear me. I kept my verbal instruction to a minimum. Instead of talking, I tried to rely on the sense of touch. Everyone put on blindfolds so that we were temporarily totally blind. For that moment, no one was squinting or straining to see what I was showing them. Instead, they explored, through touch, the contours of their face, the eye sockets, the shape of the crown, the nose, and the nostrils.

They took off their blindfolds and I showed them, through touch, techniques of molding and shaping clay. As they were sculpting the faces, Carol decided to make a skull. It was on her mind. So I brought out a real human skull for Carol to explore. Everyone in the class was interested. I helped Carol feel the roundness of the crown. But she gravitated toward the deep eye cavities, probably because of her own visual handicap. She explained to me that there was a tiny hole in the recess of the eye-socket through which a crack of light shone and allowed the skull, when it was alive, to see. I did not attempt to

correct or instruct her on the fundamentals of human eyesight. She was, at that moment, inspired and touched by a profound curiosity and an eagerness to mold the clay into the skull of both her reality, and her imagination.

As Carol molded the clay, I showed her how to remove portions to create the hollow space for the eyes. She noticed an ear cavity on the skull and was able to hollow out a space on the side of her skull with the technique I showed her. She wanted to make cheek bones; I showed her how to reach underneath the clay and gently push upward to create a bulge. When it was finally finished, Carol was proud of her achievement. It was a unique sculpture, different from anything she had done before. I was delighted to have been there to help.

Teaching blind children, by Libby Chaney

I've been teaching art with children for 10 years, always approaching it through the love of it, the love of making things, and my love of being with children. When I was asked to work with blind children, I heard only *blind* and didn't hear *children*. I don't know what the fear is in dealing with the handicapped, but I certainly had it. The class was scheduled to be a mask class. As I began to realize that many of the projects that I had planned would work with the visually

handicapped, and remembered "the love of it," I gained confidence to teach the blind. Touring the Braille Institute helped too. Any trace of fear when class began, vanished the minute I met the children.

The first week I planned to sculpt self-portraits in clay, but I found that the students lacked the technical skills to make the project truly meaningful for them. So for two sessions the children worked with basic slab, coil, and pinch clay techniques, drawing and painting. With this freedom of activity and the pace that they set, I found many directions for our course. The third week we sculpted self-portraits, and they are excellent. Here is what we did:

First, mold a piece of aluminum foil over your face, pressing it around each feature until you have a good impression of your face. Find that your face is different by trying on someone else's foil mold.

Feel the contours of your face. Make a trip across your face with a finger. Ear to ear. Forehead to chin. Where are your eyes on your head? Measure with fingers or calipers. Where is the top of your nose? What do you have besides eyes, nose, and mouth? Put your hands on your face. Smile. What happens?

Refer to your image in a mirror, and your image molded in foil. Trace forms on your face and measure with your hands.



Form in the inner eye, by Edgar Nice

Using the works of 30 West Coast artists, the Los Angeles County Department of Parks and Recreation ran a traveling tactile exhibition, Form in the Inner Eye, for five years. A blindfolded jury chose exhibits according to nonvisual stimuli. A rope stretched between exhibits guided both the blind and blindfolded visitors through a series of sensory sculptures ending with a waterbed.



Ed Nice, Director of the Cultural Section, County of Los Angeles, Department of Parks and Recreation, (155 West Washington Boulevard, Los Angeles, Calif. 90015), describes the event and tells how it was put together.

Few people give much thought to sculpture exhibits designed for the touch. It's not surprising considering the age-old adage, "don't touch." Visitors to museums and art galleries

have not been permitted to touch, let alone feel, sculpture on display. Sculpture, however, is an art created by molding with hands. Thus, it is astounding that the viewer or visitor at the museum or gallery must evaluate the work purely on a detached visual basis.

In mid-1968, the Los Angeles County Department of Parks and Recreation began to explore the possibility of developing a sculpture exhibit which would offer the rewarding and enriching experience of participation through touch. At that time, the California Arts Commission was touring a special sculpture exhibit for the blind that drew critical acclaim. However, its works were chosen on critical opinions which related purely to visual esthetics. We believed that in order to present an art exhibit which would promote full participation by the visitors, we needed to develop an exhibit focusing on nonvisual esthetics. We recognized that the experience of texture can be understood only by touch, and that pressure, vibration, and temperature must be felt to be truly appreciated. Therefore, the esthetic multiplex of texture, surface movement, temperature, pressure, and vibration would become important criteria for judging the new art exhibits. By creating a tactile sculpture exhibit which took these esthetics into consideration, the Department of Parks and Recreation created a program that was a rewarding and enriching experience for both blind and sighted people as well. Thus, the exhibit did not patronize the "needs" of the blind, but stood on its own as a legitimate arts exhibit.

The jury

We opened the competition to both blind and sighted artists accepting sculpture and basrelief in any medium that used tactility. The jurors were blindfolded so they would evaluate each entry according to nonvi-

sual criteria. Noteworthy professional artists and educators served on the jury which included noted ceramist Philip Cornelius and craftsman Bernard Kester. Other jurors represented institutions such as the Pasadena Art Museum and the Fine Arts Department of the California State University at Long Beach.

When the exhibit opened, sighted viewers were asked to wear blindfolds. A guide rope was installed to lead visitors through the exhibit. We created an exhibit in which feeling and touching were necessary from start to finish — from the moment of entry to the moment of exit. The exhibit, called Form in the Inner Eye, opened in 1969, and by popular demand was presented again in 1970, 1971, and 1972.

Sponsorship

Like most other exhibits, planning began at least six months before its preview. For this exhibit, however, there were some differences for we decided to involve institutions that serve the blind as co-sponsors. They also helped us reach the blind community and to focus planning to meet some of their particular needs. Various organizations, including the Foundation for the Junior Blind, the Braille Institute, and the Active Blind Foundation participated in planning and encouraged their members to visit. In addition, they helped promote good media coverage that attracted public attention. The Foundation for the Junior Blind co-sponsored Form in the Inner Eye, housed the opening in its auditorium, hosted the reception, and presented artists awards on opening night. The Active Blind Foundation provided volunteer staff to man the exhibit when it opened to the public, and the Braille Institute of America printed braille catalogues and press announcements. A nominal artist's entry fee plus donations from art supply firms provided cash and material awards for the artists.



Self-sustaining traveling costs

In order to attract the general public, we circulated *Form in the Inner Eye* to institutions known for their art galleries: the University of Southern California's Wright Gallery, East Los Angeles College's Vincent and Mary Price Gallery, the Brand Library Art Center, and Pierce College. In addition, a strong media campaign about this unusual exhibit generated public response.

Apart from printing brochures and soliciting prize awards, there were no major costs. *Form in the Inner Eye* was a self-sustaining art exhibit because the money raised for cash awards were disbursed to the artists, and the mounting costs were largely defrayed by each cooperating institution that housed the exhibit. Total costs did not exceed \$2,000 for each showing. In fact, the cost of mounting the exhibit today should not be much greater than this figure. We kept costs to a minimum because every artist agreed to release participating institutions from damage, loss, or theft liability and to provide their own insurance coverage if desired.

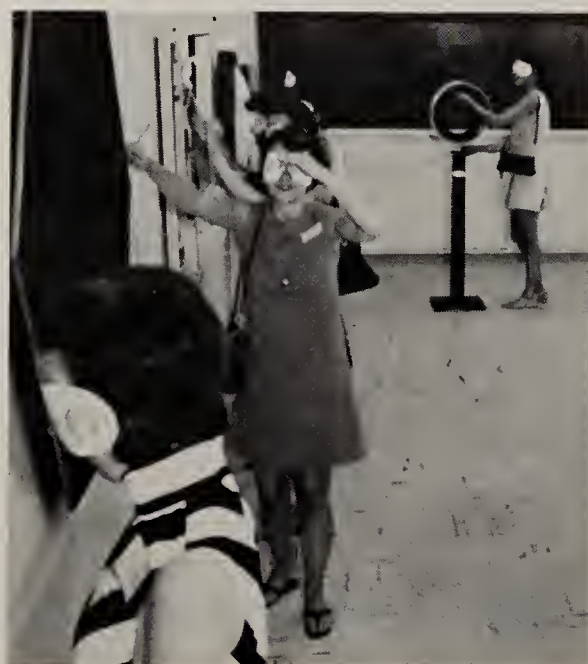
Effect on the artists and viewers

Form in the Inner Eye challenged artists because they were forced to

consider vibrations, smell, temperature, motion, and other stimuli in addition to the traditional visual criteria: rhythm, harmony, balance, and color which when considered alone prevent both artists and patrons from truly experiencing our environment.

By creating the tactile sculpture exhibit, the Department of Parks and Recreation encouraged both sighted and blind people to appreciate the environment that surrounds us. We believe that through a heightened awareness of feeling and touching, people learn more about physical art objects, and learn ultimately that they too can be inwardly touched.

A rope stretched between exhibits guided both blind and blindfolded visitors to the "*Form in the Inner Eye*" exhibition.



Publications on planning facilities for the blind

American National Standard Institute (ANSI) A 117.1 Standards for Making Buildings & Facilities Accessible to and Usable by the Physically Handicapped. Copies available free from the Architectural & Transportation Barriers Compliance Board, Room 1004, 330 C. Street, S.W., Washington, D.C. 20201

American National Standards Institute's proposed revision to A 117.1 includes new information for making buildings accessible to handicapped persons. Available free from Project Director, Dr. Edward Steinfeld, School of Architecture, Syracuse University, 118 Clarendon Street, Syracuse, N.Y. 13210, or from Architectural & Transportation Barriers Compliance Board, Room 1004, Washington, D.C. 20201.

Architectural Accessibility for the Disabled of College Campuses, 1976, integrates standards for accessibility to the blind into overall architectural planning for site development, classrooms, libraries, and performing arts facilities. Free copies from State University Construction Fund, 194 Washington Avenue, Albany, N.Y. 12210.

Architectural Hazards Encountered by Visually Handicapped Travelers, Available free from Eric N. Boe, Mobility Instructor, State of New York, Department of Social Services, Commission for the Visually Handicapped, Room 20, 202 Mamaroneck Avenue, White Plains, N.Y. 10601.

Arts and the Handicapped: An Issue of Access, 1976, \$4.00, Educational Facilities Laboratories, 850 Third Avenue, New York, N.Y. 10022.

The Blind, Space Needs for Rehabilitation, 1964, xeroxed copies, \$4.00, from School of Architecture, Oklahoma State University, Stillwater, Okla. 74074.

Designing for the Handicapped, 1971, published by George Godwin

Ltd., 4 Catherine Street, London WC2, England.

Educational Facilities for the Visually Handicapped, 1966, \$5.00, Attention: Maddy Oden, University of California, Department of Architecture, 232 Wurster Hall, Berkeley, Calif. 94700

Education and Health of the Partially Seeing Child, (includes information on facilities and equipment for the special classroom), 1959, \$12.50, Columbia University Press, 562 West 113 Street, New York, N.Y. 10025

Environmental Modifications for the Visually Impaired: A Handbook, 1977, free, Journal of Visual Impairment & Blindness, American Foundation for the Blind, 15 West 16th Street, New York, N.Y. 10011

The Preparation of Orientation and Mobility Maps for the Visually and Physically Handicapped, 1977, \$3.50, School of Architecture, Oklahoma State University, Stillwater, Okla. 74074.

The Physical Environment and the Visually Impaired, from The Swedish Institute for the Handicapped, Frack, S-16103 Bromma 3, Sweden.

Stimulating Environments for Children Who are Visually Impaired, (emphasizes outdoor environments and camping experiences). \$12.75, Charles C. Thomas, Publishing, 301-327 East Lawrence Avenue, Springfield, Ill. 62717.

Exploring the Influence of the Play Environment on the Social Behavior of Visually Handicapped Children, 1975, \$2.50, Paul Wolff, Department of Architecture & Environmental Design, California Polytechnic State University, San Luis Obispo, Calif. 93407.

The Centre on Environment for the Handicapped, 120-126 Albert Street, London NW1 7NE, England, has a variety of publications on design and environment for the handicapped. "The Environment of Blind People" is available (75¢) and a subscription to "Design for Special Needs," a journal, costs \$7.75.

National resource agencies serving the blind

There are about 500 private agencies and hundreds of public service organizations serving the blind — too many to list individually here. The principal source for these organizations is the "Directory of Agencies Serving the Visually Handicapped," 20th edition, \$10.00. It contains information on financial assistance, educational services, local and residential schools, library and rehabilitation services. Copies are available from the American Foundation for the Blind, 15 West 16th Street, New York, N.Y. 10011. The directory is also available at most public libraries and at local agencies serving the blind.

National Blindness Information Center, 1346 Connecticut Avenue, N.W., Suite 212, Washington, D.C. 20006. Call (toll free) 800-424-9770 for instant access to technical information and consultants.

Louis Braille Foundation for Blind Musicians, Inc., 112 East 19th Street, New York, N.Y. 10003, is a national nonprofit organization providing talented blind musicians with braille scores, scholarship aid, auditions, evaluation, and counseling. It also acts as an agent to obtain paid engagements for musicians.

American Foundation for the Blind, 15 West 16th Street, New York, N.Y. 10011, is a national research, information, and consulting agency that acts as a clearinghouse for agencies serving the blind. Send for copies of its policy statement and a bibliography on arts and the blind.

The National Federation of the Blind, 218 Randolph Hotel Building, Des Moines, Iowa 50309, is a federation of state and local organizations comprising blind people. Promotes legislation, evaluates present programs, and offers technical assistance to organizations interested in promoting arts and public services

for the blind.

Instructional Materials Reference Center, c/o American Printing House for the Blind, 1839 Frankfort Avenue, Louisville, Ky. 40206, serves as a national reference center to locate materials for blind and visually impaired children and adults.

Music Services, Library of Blind and Physically Handicapped, Washington, D.C. 20542, toll free 800-626-8507, offers free national library service for blind and partially sighted musicians. Can be used by sighted public.

Library of Congress, Blind and Physically Handicapped Division, Washington, D.C. 20562, provides free materials on aids and appliances for the blind and physically handicapped, magazines and special media, aids for handicapped readers, reference circulars.

Recording for the Blind, 215 East 58th Street, New York, N.Y. 10022. Send for catalogue of tape recorded books. Will record any book or catalogue free on request.

For local services, write your state department of rehabilitation for the blind and/or your state commission for the visually impaired.



National resource agencies serving the visually handicapped

There are far fewer agencies specializing in services for visually handicapped and partially sighted people, even though this constituency far outnumbers the blind and severely visually impaired population. According to the National Association for Visually Handicapped, there are almost six million partially sighted people who are not considered legally blind, and thus ineligible for the benefits and services offered legally blind people. The following is a list of major national agencies providing services to the visually handicapped.

American Printing House for the Blind, 1839 Frankfort Avenue, Louisville, Ky. 40206. The central source for textbook material in large type.

Music Services Section, Division for the Blind and Physically Handicapped, Library of Congress, Washington, D.C. 20542. Provides music materials, publications, resources and reference services in large print. Maintains a toll free telephone service: 800/424-8567.

National Association for Visually Handicapped, 3201 Balboa Street, San Francisco, Calif. 94121, and 305 East 24th Street, 17C, New York, N.Y. 10010. The principal consumer services organization for the partially sighted. Provides free large print publications, acts as a clearinghouse on available services, and consults with projects aimed at serving the partially sighted constituency. Also maintains a 20,000-volume collection of commercially produced large print books and provides free reference materials on devices and reading aids.

Accessible Circulating Exhibitions

Since blind audiences are becoming accustomed to visiting cultural institutions, many museums are seeking circulating exhibits that have been designed with consideration for blind audiences. At this writing, there are at least three current exhibitions available. If you know about others, please send notice to ARTS, Box 2040, Grand Central Station, New York, N.Y. 10017.

Larry Molloy, Director of the National Arts & The Handicapped Information Service, escorts Mrs. Rosalynn Carter and Mrs. Joan Mondale through the White House Conference Accessible Arts exhibit at the National Gallery of Art in Washington, D.C.

Accessible Arts — A 15 — panel photographic exhibit depicting the involvement of handicapped people in the arts. The exhibit was written and designed by the National Arts and the Handicapped Information Service to meet architectural, visual, and communications standards for accessibility to handicapped audiences. The photography, for example, conforms to recommendations from the National Institute of Health for the communication of visual images to people with low vision. In addition, the catalogue is printed in large type and a cassette recording with mixed music provides a de-



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(April 1978)



Sculptor Xavier Medina-Campeny guides a student from the Industrial Home for the Blind through the tactile sculpture exhibition at the Genesis Gallery in New York City.



Visitor to the 1977 National Exhibit of the Blind examines a crafts object on an adjustable pedestal at the Nevil Gallery of the University Museum in Philadelphia.

scription of the exhibit for blind visitors. Write: Dana Perry, Association of Science—Technology Centers, 2100 Pennsylvania Avenue, N.W., Washington, D.C. 20037.

Classical/Surrealist Sculpture Exhibition — an exhibition of 20 to 30 bronzes by the highly acclaimed sculptor, Xavier Medina-Campeny. Mr. Campeny teaches sculpture to blind adults and the experience has dramatically influenced his work. Each piece is designed to incorporate elements of tactile and visual surprise. The exhibition is often used in conjunction with studio classes for blind children and adults in galleries and museums. Write: Xavier Medina-Campeny, Carnegie Hall, 881 Seventh Avenue, Studio 305, New York, N.Y. 10019.

National Exhibits by Blind Artists — exhibitions of works by blind artists sponsored by the University Museum of the University of Pennsylvania. The 1977 exhibit (now in circulation) focuses on crafts and contains 80 pieces selected from over 300 entries and includes ceramics, rugs, quilts, needlework, wood construction, knitting, pottery, and jewelry. The 1978 exhibit includes both crafts and the fine arts. Exhibitions are individually designed for each host museum. Write: Hester Laning Pepper, President, National Exhibits by Blind Artists, Inc., University Museum, University of Pennsylvania, 33rd & Spruce Streets, Philadelphia, Pa. 19104.

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